REGION 4
ATLANTA, GA 30303

December 23, 2024

Mr. David Bernhart
Assistant Regional Administrator for Protected Resources
National Marine Fisheries Service
Southeast Regional Office
St. Petersburg, Florida

Re: Request for Reinitiation of Expedited Informal Consultation under Endangered Species Act Section 7(a)(2) and Fish and Wildlife Coordination Act for modifications to Ocean Era's marine aquaculture facility (Velella Epsilon)

Dear Mr. Bernhart:

The U.S. Environmental Protection Agency Region 4 (EPA) issued a National Pollutant Discharge Elimination System (NPDES) permit in 2022 for Ocean Era's small-scale marine aquaculture facility (the 2022 Permit). The 2022 permit was subject to Endangered Species Act (ESA) Section 7 informal consultation with the National Marine Fisheries Service (NMFS). EPA is now considering a modified NPDES permit to reflect revised operations by Ocean Era. EPA has identified new information that may not have been previously considered in NMFS's written concurrence for the 2022 permit. EPA is acting as lead agency for the two other federal actions associated with the proposed project (U.S. Army Corps of Engineers (USACE) action under a Rivers and Harbor Act (RHA) Section 10 permit and the National Oceanic and Atmospheric Administration (NOAA) Sea Grant action of providing federal funding to Ocean Era).

On behalf of the USACE and NOAA Sea Grant, EPA requests reinitiation of the Fish and Wildlife Coordination Act (FWCA) consultation and ESA Section 7 consultation in accordance with the expedited informal provisions (ESA Section 7(a)(2)). Pursuant to our request for expedited informal consultation, the enclosures provide information about the ESA Section 7 consultation conducted for the 2022 permit; new information that is available due to Ocean Era making modifications to the facility; a description of the action and action area to be considered; a description of any listed species or critical habitat that may be affected by the action; and an analysis of the potential routes of effect on any listed species or critical habitat.

Based on the analysis presented in the enclosures, EPA has determined that the modifications to the proposed activity are "not likely to adversely affect" some species and critical habitats, and have "no effect" for other species or critical habitats that are relevant to the proposed action under ESA in the action area. EPA has used the best scientific and commercial data available to complete this analysis. EPA also requests NMFS provide written concurrence with our determinations under ESA Section 7 and FWCA.

Sincerely,

KIP TYLER
Digitally signed by KIP TYLER
Date: 2024.12.23 16:55:46 -05'00'

Kip M. Tyler, Senior Permitting Specialist
NPDES Permitting Section

cc: Mr. John Fellows, USACE (via email)
Mr. Mark Rath, NOAA Sea Grant (via email)

Enclosures:

1. Supporting Information and Analysis of Effects under ESA Section 7 and FWCA for the Draft Modified NPDES Permit, RHA Section 10 Permit, and NOAA's Sea Grant Action
2. Final Biological Evaluation for the 2022 NPDES permit dated September 30, 2020
3. NMFS response letter to the 2022 permit's ESA consultation dated September 30, 2019
4. Additional analysis conducted by NMFS after the 2022 NPDES permit was issued dated August 26, 2022
5. Ocean Era's final marine mammal, sea turtle, and seabird monitoring and data collection plan dated December 20, 2024.

Enclosure 1 - Supporting Information and Analysis of Effects under ESA Section 7 and FWCA for the Draft Modified NPDES Permit, RHA Section 10 Permit, and NOAA's Sea Grant Action

Federal Coordination and Lead Agency Determination

The implementing regulations for ESA consultations allow a lead agency when the proposed action involves more than one federal agency.[1] The usage of a lead federal agencies during environmental reviews promotes efficiency and consistency. The FWCA does not require or suggest a lead agency for consultations involving multiple agencies for the same action.

The 2022 NPDES Permit

Given that the action of authorizing the proposed project involved more than one federal agency (NPDES permit issuance by EPA, and Rivers and Harbors Act (RHA) Section 10 permit issuance by the US Army Corps of Engineers (USACE)), the EPA elected to act as the lead agency to complete the NEPA review as well as the action agencies' ESA and Essential Fish Habitat (EFH) consultation responsibilities. EPA's decision to act as the lead agency was also informed by the 2017 Memorandum of Understanding for Permitting Offshore Aquaculture Activities in Federal Waters of the Gulf of Mexico that was effective during the 2022 NPDES permit issuance for seven federal agencies with permitting or authorization responsibilities. EPA notified the National Marine Fisheries Service (NMFS) that EPA is acting as the lead agency. NMFS and USACE were cooperating or co-federal agencies for these environmental reviews.

Proposed NPDES Permit Modification

The modified NPDES permit remains subject to multiple federal actions, therefore, the EPA elected to maintain the lead federal agency roles for NEPA, ESA, and EFH.[2] On November 2, 2023, NMFS and USACE were informed by EPA that it will serve as the lead agency for any subsequent EA revisions or analysis, if necessary, due to proposed project modifications requested by Ocean Era, and requested that NMFS and USACE become a cooperating agency for NEPA if additional analysis is needed to evaluate potential effects with the proposed modification. These letters also notified the NMFS and USACE that EPA will maintain the lead agency role for ESA and EFH if re-initiating the consultations are required. On November 3, 2023, NMFS and USACE accepted EPA's lead role for NEPA, ESA, and EFH while also acknowledging that they will operate as cooperating agencies under NEPA. ESA Section 7 consultation for the modified action also includes NOAA's Sea Grant action for funding the project in partnership with Ocean Era, University of Florida, and University of Miami.

Supporting Information

Interagency consultation and coordination with the NMFS and the US Fish and Wildlife Service (USFWS) is required by ESA Section 7 to insure that any action authorized, funded, or carried out by an action agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of any designated critical habitat (ESA Section 7(a)(2)), and confer with the NMFS and USFWS on any agency actions that are likely to jeopardize the continued existence of any species that is proposed for listing or result in the destruction or adverse modification of any critical habitat proposed to be designated (ESA Section 7(a)(4)). Additionally, the implementing regulations for the CWA related to the ESA require EPA to ensure, in

[1] 50 CFR § 402.07 allows a lead agency: "When a particular action involves more than one Federal agency, the consultation and conference responsibilities may be fulfilled through a lead agency. Factors relevant in determining an appropriate lead agency include the time sequence in which the agencies would become involved, the magnitude of their respective involvement, and their relative expertise with respect to the environmental effects of the action. The Director shall be notified of the designation in writing by the lead agency."

[2] The NPDES permit at issue is exempt from NEPA requirements, but EPA elected to voluntarily prepare an environmental assessment of impacts and alternatives in accordance with its Policy for Voluntary Preparation of NEPA Documents, 63 FR 58045 (Oct. 29, 1998).

consultation with the NMFS and USFWS, that "any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat."[3]

The 2022 NPDES Permit

A biological evaluation (BE) was prepared by EPA and USACE to jointly consider the potential direct, indirect, and cumulative effects that the proposed actions may have on listed and proposed species as well as designated and proposed critical habitat, and to assist the action agencies in carrying out their activities for the proposed action pursuant to ESA Section 7(a)(2) and ESA Section 7(a)(4). EPA and USACE reviewed the proposed activity and determined that a BE was appropriate to evaluate the scope of the proposed project. The action agencies considered the potential affects to threatened and endangered species from five groups of species: birds, fish, invertebrates, marine mammals, and reptiles. EPA and USACE concluded that the proposed project's potential threats (disturbance, entanglement, vessel strike, water quality) to ESA-listed species and critical habitat are highly unlikely to occur or extremely minor in severity; therefore, the potential effects to ESA protected species and critical habitats are discountable or insignificant.

On August 13, 2019, EPA and USACE provided the jointly developed BE to NMFS and initiated consultation with the NMFS. Regarding federally listed species, proposed species, and critical habitat under the jurisdiction of NMFS, EPA and USACE determined that the discharges authorized by the NPDES permit "may affect, but [are] not likely to adversely affect" certain fish, invertebrates, marine mammals, and reptiles within the proposed action area. On September 30, 2019, NMFS concurred with some of the "not likely to adversely affect" determinations made by the federal action agencies, and revised others to "no effect."

Additional Analysis Conducted by NMFS After the 2022 NPDES Permit was Issued

Following the final NPDES permit issuance in 2022, NMFS issued a letter of concurrence (LOC) that amended the consultation record to add a late-arriving action agency and to include additional relevant information related to the project's potential impacts. The LOC did not change NMFS's determination that the Ocean Era project is not likely to adversely affect any listed or proposed species or designated or proposed critical habitat. The LOC included an additional analysis on 1) the project-related vessel route between the marina and farm location; 2) potential route of effects to species from vessel strikes associated with the project and from non-project vessels due to a potential increase in recreational or commercial traffic near the facility; 3) potential effects of the aquaculture facility acting as a fish aggregating device that could lead to behavioral changes, increased predation, and increased bycatch; and 4) the potential risk of harmful algal blooms (HAB) from the project on listed species. Because all potential project effects to listed species were found to be extremely unlikely to occur, NMFS reaffirmed its concurrence with the EPA and USACE assessment that the proposed action is not likely to adversely affect any listed species or designated critical habitat.

Summary of Proposed Changes to the Facility

Ocean Era has indicated that it will not proceed with its aquaculture project as currently permitted in the 2022 permit because it intends to make changes to certain aspects of the operation. Specifically, Ocean Era has requested to alter: 1) the species of fish to be cultured (from almaco jack to red drum); 2) net material (copper to monofilament); and 3) the type of rearing system (from swivel point mooring system to a stationary cage attached

[3] 40 CFR § 122.49: The following is a list of Federal laws that may apply to the issuance of permits under these rules. When any of these laws is applicable, its procedures must be followed. When the applicable law requires consideration or adoption of particular permit conditions or requires the denial of a permit, those requirements also must be followed. … (c) The Endangered Species Act, 16 U.S.C. 1531 et seq. section 7 of the Act and implementing regulations (50 CFR part 402) require the Regional Administrator to ensure, in consultation with the Secretary of the Interior or Commerce, that any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat.

to a grid mooring system). Other operational changes related to the discharge include a decreased fish production amount and lower nutrient load. More details for the proposed facility changes are provided below with a comparison to the currently permitted project (also see Tables 1 and 2).

- **Fish Species:** Ocean Era will raise red drum (*Sciaenops ocellatus)* rather than almaco jack (*Seriola rivoliana).* Both fish species are native to the Gulf of Mexico. The red drum brood stock will be sourced from wild fish caught in the Gulf of Mexico in the Sarasota region. Ocean Era will obtain juvenile red drum from first generation offspring of wild fish that are produced and raised at Mote Aquaculture Park, University of Miami, or Live Advantage Bait, LLC.
- **Fish Quantity:** The 2022 permit application states that 20,000 almaco jack fingerlings would be initially stocked into the cage and an estimated 17,000 fish would be harvested. Ocean Era's modification shows that 20,000 red drum fingerlings would be stocked into the cage and approximately 17,000 fish would be harvested within approximately 12 months assuming an 85% survival rate. No appreciable changes to the number of fish produced is anticipated by Ocean Era.
- **Survival Rate:** Ocean Era estimates that the survival rate (85%) for red drum will be the same as almaco jack.
- **Fish Size and Production:** The maximum production amount (without accounting for mortality) for the 2022 permit and modified permit is 88,000 lbs and 55,000 lbs, respectively. Red drum grow slower than almaco jack; therefore, the red drum harvest size will be approximately 2.75 lbs rather than 4.4 lbs for almaco jack. When accounting for the 15% mortality rate, the red drum's smaller harvestable size equates to a total estimated harvest of 46,750 lbs vs. the currently estimated harvest of 74,800 lbs, or approximately 63% of the currently estimated fish production.
- **Fish Feed:** Red drum require a different feed than almaco jack that is lower in protein and nutrients. The previous feed proposed by Ocean Era for almaco jack was EWOS Marine Juvenile (juvenile fish) and Skretting Kona Pacific (adult fish). See table 1 for certain feed characteristics. For the modified permit, Ocean Era will use Cargill Aquacell Starter 5014 (juvenile) and Cargill Triton 4413 redfish feed (adult).
- **Feed Rate:** The daily feed rate for almaco jack and red drum are approximately the same. The estimated feed rate is approximately 1% of fish body weight per day. Due to the slower growth rate and smaller harvest size, the total amount of feed used during production for the modified permit application would be approximately 49,000 lbs less than the feed amount for the 2022 permit.
- **Fish Density:** The fish density at harvest for the currently permitted and modified permit are approximately 1.3 and 1.0, respectively. The stocking density will remain at a commercial scale aquaculture density.
- **Cage Design:** Ocean Era reported that minor changes to the submersible net pen design are anticipated. The permitted net pen and the proposed cage are based on a PolarCirkel-style submersible design. The diameter of the 2022 permitted and proposed cage is 17 m and 25.5 m, respectively. The total fish rearing volume will be maintained at approximately 56,504 ft^3.
- **Cage Net Material:** The permitted net mesh material was CopperNet that uses copper alloy wire woven into chain-link fence mesh. The proposed net material is KikkoNet – a black colored, UV stabilized, and lightweight polyethylene terephthalate monofilament that is woven into a hexagonal mesh. Ocean Era reported that there is no functional difference between the two cage materials in terms of entanglement risk or other concerns. The monofilament and copper cage material have the same opening size of 40 mm. The diameter of the Kikkonet and copper net are 2.8 mm and 4 mm, respectively.
- **Mooring System:** Mooring design for the proposed cage uses eight embedment anchors compared to the permitted mooring design of three embedment anchors. The mooring design for the proposed cage also uses four ballast blocks that touch the sea floor as part of the anchoring system (which were not part of

the embedment design for the 2022 permit). The estimated size of the concrete ballast blocks is 1.7 m^3 and weigh 1,750 kg.

- **Mooring Lines:** Mooring lines will be used at multiple locations. The proposed configuration uses rope or chain to create the grid system, attach anchors to the grid system, connect ballast blocks to the grid system, and connect the grid system to the cage. Additionally, there are lines that connect from the anchor system to small buoys at the water surface to mark the location of anchors and show the grid boundary. Overall, the lines used for the proposed stationary cage system result in increased length of at least 4,750 ft. All ropes and lines are 2 inches in diameter.
- **Operational footprint:** When accounting for the mooring system, lines, and anchorages, the currently permitted swivel mooring produced a project footprint of approximately 11 acres. The proposed stationary grid system boundary area is approximately 23 acres.
- **Location and Water Depth**: No changes are proposed for the facility location and water depth. The proposed project would be placed in the Gulf at an approximate water depth of 130 ft, generally located 45 miles southwest of Sarasota, Florida.
- **Drugs:** Ocean Era is not proposing any changes to the drugs or therapeutants used during fish production. As currently permitted, Ocean Era does not intend to use therapeutants for the modified action, but use of therapeutants is authorized. Ocean Era reports that red drum are better suited to a stationary net pen and less likely to need therapeutants to control pathogens due to being naturally more tolerant to skin flukes.
- **Other:** Ocean Era did not report any other revisions to the modified operations.

Table 1 - Summary of Project Information

Item	Current NPDES Permit	Modified NPDES Permit
Fish Species	Almaco jack (*S. rivoliana)*	Red drum (*S. ocellatus*)
Fish Quantity		
@ stocking	20,000	20,000
@ harvest	17,000	17,000
Total Fish Production (lbs)		
Maximum (lbs)	88,000	55,000
Survival Rate (%)	85%	85%
Estimated (lbs)	74,800	46,750
Harvest Fish Size (lbs)	4.4	2.75
Harvest Fish Density (lbs/ft^3)	1.3	1.0
Fish Feed (juvenile)		
Manufacturer and Name	EWOS Marine Juvenile	Cargill Aquaxcel Starter 5014
Feed Rate (% fish body wt)	~1%	~1%
Protein (%)	50	50
Phosphorus (%)	1.4	1.0
Nitrogen (%)	8.0	8.0
Fish Feed (Adult)		
Manufacturer and type	Skreeting Kona Pacific	Cargill Triton 4413
Feed Rate (% fish body wt)	~1%	~1%
Protein (%)	41	44
Phosphorus (%)	1.2	1.0
Nitrogen (%)	6.56	7.04
Total Estimated Load @ Max Production		
Total Feed Amount (lbs)	175,320	126,210
Phosphorus (lbs)	2,104	1,262
Nitrogen (lbs)	14,026	10,097
Solids (lbs)	61,345	44,161
Total Ammonia Nitrogen (lbs)	6,899	5,330
Cage Information		
Cage Type	PolarCirkel-style	PolarCirkel-style
Mooring Type	swivel	stationary
Rearing Volume (ft^3)	56,504	56,504
Diameter (ft)	56	84
Net material	copper	monofilament
Operational Footprint (acres)	11	23

Table 2 - Summary of Mooring System

Item	Current Permit		Modified Permit		Difference	
	Qty	Length (ft)	Qty	Length (ft)	Qty	Length (ft)
Embedment anchors	3	-	8	-	+5	-
Concrete nodes	-	-	4	-	+4	-
Mooring chain/line	3	787	8	3,306	+5	+2,519
Mooring rope	3	394	-	-	-3	-394
Bridle lines	3	295	8	1,128	+5	+833
Node block to buoy	-	-	4	328	+4	+328
Grid line	-	-	4	787	+4	+787
Anchor to buoy line	-	-	8	656	+8	+656
Total	**12**	**1,476**	**44**	**6,205**	**35**	**+5,123**

Revisions to the Draft Modified NPDES Permit

All conditions of the 2022 permit and the draft modified permit remain the same except for the following revisions to the draft modified permit:

1. the maximum fish production level has been reduced from 88,000 lbs to 55,000 lbs on the cover page of the draft modified Permit and in Part II.B.14;
2. the cultured fish species (red drum) has been included in Part II.A of the draft modified Permit;
3. considering Ocean Era's decision to use a material other than copper for the net pen, effluent monitoring for total copper has been removed from Table 1 of draft modified Permit Part II.A.1; and
4. a prohibition on the intentional or negligent release of produced fish is included as a clarification in the draft modified Permit Part II.B.15.

Conservation Measures and Best Management Practices

A best management practices (BMPs) plan is required to be developed and implemented by the NPDES permit for the following topics: feed management; waste collection and disposal; transport of harvest discharge; carcass removal; material storage; maintenance; recordkeeping; and training (see draft modified NPDES permit for details). The NPDES permit also requires Ocean Era to implement other practices that are related to protecting ESA-listed species such as the environmental monitoring plan and a facility damage prevention and control plan. Ocean Era must implement these comprehensive plans to meet the permit conditions that are unique to their operation.

Ocean Era will use a protected species monitoring plan (PSMP) that was created in coordination with NMFS to protect and monitor for any protected species, and collect data on potential interactions between aquaculture facilities and protected species. The PSMP has been updated by Ocean Era in coordination with NMFS to include the project modifications and is enclosed in item 5. All conservation measures included in the 2022 permit action, including the SERO Protected Species Construction Conditions and Vessel Strike Mitigation Measures,[4] will be implemented for the modified project.

Description of the Action Area

The *action area* is all areas to be affected by the Federal action and not merely the immediate area involved in the action. *Effects of the action* are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. The action area is distinct from and can be larger than the project footprint because some elements of the project may affect listed species or critical habitat some distance from the project footprint. The action area, therefore, extends out to a point where no effects from the project are expected to occur.

For the modified project, the action area identified for the 2022 permit was a 1,000-meter radius measured from the facility center. The BE described the surrounding conditions, habitats, uses dominating the action area, general site conditions, water depth, substrate type, presence of any submerged aquatic vegetation, hard bottoms, etc. The 2022 action area remains unchanged for the draft modified NPDES permit. Additionally, NMFS 2022 LOC redefined and expanded the action area to include any vessel route to and from the facility in the Gulf of Mexico.

[4] NMFS conservation measures are available at: www.fisheries.noaa.gov/southeast/consultations/regulations-policies-and-guidance

Analysis of Effects Not Previously Considered for the Federal Permitting Actions

According to 50 CFR 402.16, a federal agency is required to reinitiate ESA Section 7 consultation if any one of four thresholds are triggered.[5] EPA, as the lead agency, has evaluated the triggers as described below and assessed the effects of the modified permitting action that were not previously considered under the 2022 permit:

1. **If the amount or extent of taking specified in the incidental take statement is exceeded. (50 CFR 402.16(a)(1))**
   Incidental take refers to takings of ESA species that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant. The proposed project is not subject to an incidental take statement, and no incidental take is expected or allowed. ESA consultation reinitiation is not required based on this trigger.

2. **If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered. (50 CFR 402.16(a)(2))**
   EPA and USACE evaluated the potential impacts to listed species and critical habitat in the 2020 BE. The risks to ESA-listed species and critical habitat that were considered during the 2022 permit were water quality, disturbance, vessel strike, and entanglement. The additional analysis conducted by NMFS in 2022 further considered potential impacts relating to HABs, fish aggregation devices, and vessel strikes. The routes of effects and potential impacts to listed species and critical habitat for the modified action are presented below.

   <u>Effects to Listed Species</u>

   Water Quality
   All potential water quality risks associated with the modified permit are less when compared to the 2022 permit due to the change in fish species, decreased fish production amount, lower total feed, and reduced phosphorus and nitrogen feed contents. As shown in Table 1, the total load for nitrogen, phosphorus, and total ammonia nitrogen have decreased by 28%, 40%, 23%, respectively. EPA does not anticipate that the modified project's discharge will contribute to HABs due to the offshore location and small scale of the facility; however, any HAB effects from the project are mitigated by the reduced scale of pollutants compared to pollutants that were already evaluated in the 2022 permit record.

   Ocean Era indicated that the netting material would need more regular cleaning unlike the previous cage material proposed.[6] More frequent cleanings may temporarily increase floating biosolids or turbidity in the water surrounding the cage for a short duration directly after the cage cleaning. Because the listed species in the action area are highly mobile, and the time of increased turbidity in the water column will be very short, the effects of cage cleaning will be insignificant. The net material

[5] 50 CFR 402.16: Reinitiation of consultation: (a) Reinitiation of consultation is required and shall be requested by the Federal agency, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (1) If the amount or extent of taking specified in the incidental take statement is exceeded; (2) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or (4) If a new species is listed or critical habitat designated that may be affected by the identified action.

[6] On Oct 10, 2024, Ocean Era proposed more regular cleaning of the net pen to occur "approximately biweekly for the first 6 months, then increasing the cleaning (as needed) to potentially weekly for the last 6 months." EPA has not approved any revised BMPs that may contain updated operational practices that may be documented within the PSMP that is approved by NMFS.

allows for more efficient cleaning that allows an increased cleaning frequency which can further control biofouling.

The revised fish species (red drum) is native to the Gulf of Mexico that has historically supported commercial and recreational fisheries. Similar to the fish species that were evaluated during the 2022 permit issuance (Almaco jack), red drum will be the first-generation offspring of wild-caught red drum in the vicinity of the facility. NPDES permit conditions limiting fish escapes have been further clarified by the draft modified permit's express condition prohibiting the intentional or negligent release of cultured fish.

Other biological materials such as pathogens that are considered pollutants under the NPDES program were previously assessed. The draft modified permit maintains conditions to reduce the probability of fish contracting diseases and limit pathogen transfer such as a veterinarian certificate attesting to fish health, and best management practices to prevent and minimize the indirect transfer or discharge of aquaculture pathogens. Ocean Era reports that red drum are more tolerant to skin flukes than almaco jack and will be better suited for a stationary culture system. Additionally, the netting is a smooth non-fibrous material that minimizes the development of biofouling marine benthic fauna on its surface. By limiting the amount of biofouling on the cage, the cultured fish receive increased water flow that maintains water quality levels that are optimal for fish health. The promotion of disease prevention practices within the cage decreases the transfer risk of pathogens or diseases to native fish outside of the culture system.

The usage of certain drugs or therapeutants is allowed for freshwater and marine aquaculture under the NPDES program, and under the 2022 permit and draft modified permit. The draft modified NPDES permit contains monitoring and reporting provisions for all drugs and chemicals used because Ocean Era previously identified three drugs as potential candidates (hydrogen peroxide, oxytetracycline dihydrate, and florfenicol) should the need for drug usage arise. Drug treatment usage is mitigated or minimized by the strong open ocean currents that will constantly flush the fish culture area, the properties of the net mesh material that minimizes biofouling, and the lack of nearby aquaculture facilities that increase the risk of disease and pathogen transmission. Additionally, the operational practices mentioned previously regarding pathogen control (e.g., regular maintenance and cleaning of the cage, monitoring effluent water quality, fish health monitoring) help minimize therapeutant usage.

Vessel Strike and Disturbance

Ocean Era is not proposing more vessels or more trips to the facility for the modified action. Vessel traffic from boats not associated with Ocean Era are estimated to be similar to that previously evaluated. Ocean Era has also not reported any operational changes that bear on the previous analysis conducted for disturbance to ESA-listed species. EPA has determined that the exposure routes associated with vessel strikes and disturbance will be the same as evaluated in the 2019 BE, the NMFS 2022 LOC, and the 2022 permit record. Therefore, effects due to vessel strike and disturbance from the project modifications are extremely unlikely to occur.

Fish Aggregation

There are potential risks to ESA-listed species from the proposed project acting as a fish aggregating device. As discussed above, the proposed project modification changes the cage net material from

copper alloy mesh to Kikkomesh. Copper alloy mesh has increased anti-biofouling properties over monofilament; however, KikkoNet is known to foul less than other fiber-based monofilament due to its rigidness and smooth material.[7] KikkoNet may have increased risk of biofouling than the original copper alloy mesh net material. Due to increased biofouling that may occur, fishes and sea turtles may be attracted to the cage to feed on biofouling algae and crustaceans. In an effort to reduce biofouling, the applicant has indicated that biofouling reduction strategies will be implemented (e.g., regular inspections and maintenance, brushing, pressure washing). Therefore, the increase in biofouling from the modified netting material is likely to be negligible and the effects due to fish aggregation from the proposed project modifications are insignificant.

Entanglement

Regarding entanglement concerns, the modified project will increase the operational footprint (e.g., the total area used from the water surface to seafloor), include more lines in the water column, add more structures on the seafloor, and change the primary cage netting material from copper to monofilament. The facility footprint is being increased because a stationary grid system requires an anchoring design that is different than a swivel point system as consulted on during the 2022 permit. More details about the mooring and cage design can be found in Enclosure 5 and within the Section titled Summary of Proposed Changes to the Facility.

While the number of mooring lines is greater than the 2022 permitting action (see Table 2), EPA does not expect there to be an increase in effects to listed species beyond those that have previously been considered. As noted in the 2022 permit consultation, the risk of entanglement in mooring lines is reduced by using durable materials such as thick rope and steel chain that will be always maintained under tension. In the 2022 permit consultation, the applicant agreed to encase the bridle lines in rigid pipe to minimize entanglement risks because the mooring system was not designed to be in tension. Due to the proposed change in net pen mooring from a swivel mooring to a grid mooring system, the bridle lines will no longer be slack during the fish farming operation. A 2023 global review of aquaculture entanglements found that tensioning of mooring lines decreases risks from entanglement while also noting that there are instances of marine mammal physical interactions that result in fatal entanglements at offshore finfish farms.[8] The only time that some lines may be slack is when the cage is raised and lowered (e.g., maintenance or storm events). As the applicant has agreed to implement a protected species monitoring plan, farm workers will be able to monitor for any listed species interactions during most situations that the cage is being raised and lowered. The entanglement risks that are associated with an increased quantity of gear are mitigated by the stationary grid system that will be maintained under tension to reduce the risk of entanglement to listed species and marine mammals. Therefore, the addition of mooring lines will not increase the risk of entanglement to any listed species and the effects from entanglement due to the project gear modifications are insignificant.

Regarding entanglement risks related to the net material (KikkoNet) – it is a hard plastic chain-link material that is highly predator resistant and withstands oceanic conditions for several years. The Kikkonet material has a long history of being used in marine aquaculture internationally. Unlike

[7] Lowell, J.M.S. 2012. Effect of netting materials on fouling and parasite egg loading on offshore net pens in Hawaii. Final Report, Blue Ocean Mariculture (2012), pp. 1-5. < https://internationalcopper.org/wp-content/uploads/2017/05/Trematode-Study.pdf >

[8] Bath G.E., Price C.A., Riley K.L., Morris J.A. Jr. 2023. A global review of protected species interactions with marine aquaculture. Review in Aquaculture; 1-34. doi:10.1111/raq.12811

woven monofilament netting, Kikkonet is a UV stabilized polyethylene terephthalate monofilament. Kikkonet is kept in tension and is rigid like the previous copper alloy mesh netting considered in the 2022 permit consultation. A previous EA[9] and biological opinion[10] evaluated the usage of advanced monofilaments like Kikkonet in marine aquaculture and found that its rigidness offers lower risk of entanglement of marine mammals and helps prevent cage breaches. In open ocean environments, the net material is kept in tension which reduces the likelihood of entanglement. In addition, the KikkoNet proposed is the same mesh size as the original proposed mesh size (40mm). The risk of entanglement, particularly by sea turtles, in the mesh netting is unchanged from the 2022 permit consultation. Furthermore, Ocean Era is required to develop operational practices (e.g., net pen inspections, routine net maintenance, debris removal, and monitoring of net pen thickness material) that ensures structural integrity and limits the risk of entanglement.[11] Therefore, the permit modification associated with changing the net material will not increase the risk of entanglement to any listed species and the effects due to the project modification are insignificant.

The length of time the facility will be deployed, and the small-scale nature of the system, are additional factors that make entanglement impacts to ESA-listed species highly unlikely to occur or extremely minor in severity. The gear changes associated with the modified project will not pose any increased effects to ESA-listed species and critical habitat beyond those previously evaluated. Additionally, Ocean Era will use a PSMP throughout the permit term that was developed in coordination with NMFS to protect and monitor for any protected species, and collect data on potential interactions between aquaculture facilities and protected species.

Marine Debris

The use of Kikkonet netting material instead of copper alloy mesh may introduce plastic particles into the marine environment due to the natural wear and tear of the mesh netting over time. While the Kikkonet mesh is known to be very durable for extended periods of time, there is the potential for some amount of wear and tear which may lead to plastic leaching into the water column. However, due to the durability of the netting, regular netting inspections, and the short time span of the project (only 1 year), the effects from natural wear and tear of the KikkoNet to listed species is expected to be insignificant.

Effects to Critical Habitat

The proposed project does not overlap with any critical habitats as shown in Table 4. Therefore, the proposed project modifications will not have any effect on any critical habitats.

Based on the foregoing, there is a limited amount of new information related to the revised project cage material, increased gear, and changed fish species that was not previously considered by EPA, USACE,

[9] State of Hawaii. 2009. Final Environmental Assessment/Finding of No Significant Impact for HA-3497. State of Hawaii, Department of Land and Natural Resources. < https://files.hawaii.gov/dbedt/erp/EA_EIS_Library/2009-05-08-HA-FSEA-Kona-Blue-Water-Aquafarm.pdf >

[10] NMFS. 2022. Endangered Species Act (ESA) Section 7(a)(2) biological Opinion for authorization to install new net pens and ongoing, revised mariculture operations by Blue Ocean Mariculture, LLC. NMFS File No. PIR-2018-10334.

[11] Ocean Era is required to monitor the structural integrity of the system pursuant to NPDES permit. Ocean Era has proposed in the PSMP to regularly monitor the strength of the net pen material that includes measuring the width of the netting. When any netting is measured to be less than 1.4 mm due to degradation or material elongation, the fish will be removed and the net pen will be retired. Net pen material replacement is unlikely given the 1-year duration of cage deployment. EPA has not approved any revised BMPs that may contain updated operational practices that may be documented within the PSMP that is approved by NMFS.

NOAA Sea Grant, or NMFS. EPA has elected to reinitiate informal consultation based on new information being available that was not previously considered under 50 CFR 402.16(a)(2).

3. **If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence. (50 CFR 402.16(a)(3))**

A *biological opinion* is a document that provides the opinion of the Service(s) as to whether the Federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. A biological opinion was not prepared by NMFS or USFWS for the 2022 permit because a "may affect, likely to adversely affect" determination was not made. NMFS and USFWS used the 2019 BE as the basis for not preparing a biological opinion on the proposed federal actions and did not identify any reasonable and prudent measures to minimize any take incidental to otherwise lawful activities. Therefore, the changes to the project are not relevant to a biological opinion.

Regarding the written concurrences previously by NMFS in 2019 and 2022, the concurrences did not consider the new information described in item 2 above. All routes of exposure that were analyzed in the 2019 BE and 2022 LOC remain appropriate, and the proposed modifications are not anticipated to cause an effect to listed species or critical habitat that was not considered in the previous consultation or NMFS's LOC. However, some details associated with subsequent modifications to the proposed project may not have been previously considered in evaluating potential impacts to ESA species and habitat. In order to ensure that all project revisions that were not previously evaluated in NMFS's written concurrences that may cause an effect to ESA-listed species or critical habitat are properly considered in the ESA consultation process, EPA elects to reinitiate informal consultation based on 50 CFR 402.16(a)(3).

4. **If a new species is listed or critical habitat designated that may be affected by the identified action. (50 CFR 402.16(a)(4))**

EPA has identified and evaluated below the endangered and threatened species and critical habitats that have been listed or proposed to be listed since the 2022 permit issuance. Other than the listings identified, there are no new or proposed species listings or critical habitat designations that could be affected by the modified action. Based on the evaluation described below, EPA has determined that the modified action will have no effect on the following newly listed or proposed species or critical habitats. Given that the federal action agencies are making a "no effect" determination for the newly listed species and critical habitat listed below, EPA is not required to reinitiate ESA consultation with NMFS under 50 CFR 402.16(a)(4).

Queen conch (*Aliger gigas*)

On February 14, 2024, NMFS published a notice in the Federal Register (89 FR 11208) listing the queen conch as a threatened species under the ESA. The queen conch's maximum habitat depth is 30 meters; the project is located at a water depth of 40 meters. The increased quantity of anchors or ballast blocks placed on the seafloor will not have any effect on ESA-listed coral species due to the facility location being outside the conch's habitat. Additionally, the NPDES permit requires Ocean Era to stay 500 meters away from any hardbottom habitat. EPA and USACE have determined that this project would have no effect on the queen conch based on the project location being outside the queen conch's habitat range.

Nassau grouper (*Epinephelus striatus*)

Critical habitat for the threatened Nassau grouper was designated effective February 1, 2024 (89 FR 126). The 920 miles^2 of critical habitat for the Nassau grouper was in various locations in the Atlantic Ocean and southern portions of Gulf of Mexico. The proposed project is not located near the designated critical habitat; therefore, there is no effect on the Nassau grouper critical habitat.

Rice's whale (*Balaenoptera ricei*)
NMFS proposed to designate critical habitat for the Rice's whale within the Gulf of Mexico on July 24, 2023 (88 FR 47453). The waters from the 100-meter isobath to the 400-meter isobath were identified as the core distribution area that informed the proposed critical habitat designation. The proposed project is located well-inshore of the 100-meter bathymetry boundary in approximately 40-meters of water depth. Therefore, there will not be any direct impacts such as entanglement, from the proposed project as previously considered, or the proposed project modification to the proposed Rice's whale critical habitat.

The physical and biological features that are essential to support the conservation of the critical habitat are prey, marine water quality, and sufficiently quiet conditions. As analyzed in the previous consultation, the project may adversely affect water quality due to uneaten feed, ammonia excretions, fish feces, chemicals, cleaning, etc. As noted in the previous consultation, the effluent from the project will not extend more than 30-meters (0.02 miles) away from the project location. As the amount of production from the proposed project modifications is slightly decreased from the original proposal, the effluent radius is not expected to change significantly. Thirty meters from the project location is still in approximately 40-meters of water depth. Therefore, any water quality effects from the project are not expected to extend into the proposed critical habitat for Rice's whales. In addition, as this is a one cage one year demonstration project, the water quality effects are expected to be short-lived. Therefore, there will not be any expected impacts from this proposed project, including the project modification to the water quality feature of the proposed Rice's whale critical habitat. A similar lack of effects is expected to the prey feature of the proposed critical habitat. This project also will not have any effects on the quiet conditions feature, as any sound associated with the project will be well inshore of the 100-meter bathymetry boundary of the proposed critical habitat.

Therefore, since the facility is not located near the proposed Rice's whale critical habitat and will have no effect on the proposed physical and biological features, there will be no effects from the project to the proposed Rice's whale critical habitat. EPA notes that this effects determination for proposed Rice's whale critical habitat does not change the "not likely to adversely affect" determination made for the Rice's whale (see NMFS's determination for the 2022 permit NPDES permit).

Green sea turtle (*Chelonia mydas*)
On July 19, 2023, NMFS proposed to designate new areas of critical habitat for the Green sea turtle in nearshore waters (from the mean high-water line to 20 meters depth) off the coasts of Florida, Texas, and other areas within the Atlantic and Pacific Oceans (88 FR 46572). The essential features that are needed in specific areas to support the life-history needs of the Green sea turtle are not impacted based on the modified project being outside of the 20-meter isobath. There are no expected effects from the proposed project on the proposed green sea turtle critical habitat because the newly proposed critical habitat areas are inshore of this project.

Pillar coral (*Dendrogyra cylindrus*)

NMFS proposed to change the status of pillar coral from threatened to endangered due to multiple threats to the species on August 29, 2023 (88 FR 59494). The increased quantity of anchors or ballast blocks on the ocean bottom will not have any effect on ESA-listed coral species due to the facility location being outside all known invertebrate habitat. Additionally, placement of facility related structures must stay 500 meters away from any hardbottom habitat in accordance with NPDES permit. As a result of this project not overlapping with any areas of hard bottom including pillar coral, there are no expected effects to pillar coral from this project.

Summary of Effect Determinations on Potentially Affected NMFS ESA-Listed Species and Critical Habitat

The listed species and critical habitat that may be present in the action area or overlap with the action have been assessed. The federal action agencies determination of the project's potential effects are summarized in Tables 3 and 4.

Table 3 – ESA-listed Species in the Action Area and Effect Determination(s)

Species	ESA Listing Status	Listing Rule/Date	Most Recent Recovery Plan Date	Effect Determination (Species)
Sea Turtles				
Green (North Atlantic DPS)	T	81 FR 20057 – 04/06/2016	1991	NLAA
Kemp's ridley	E	35 FR 18319 – 12/2/1970	2011	NLAA
Leatherback	E	35 FR 8491 – 06/02/1970	1992	NLAA
Loggerhead (Northwest Atlantic DPS)	T	76 FR 58868 – 09/22/2011	2008	NLAA
Hawksbill	E	35 FR 8491 – 06/02/1970	1993	NE
Fish				
Smalltooth sawfish (U.S. DPS)	E	68 FR 15674 – 04/01/2003	2009	NLAA
Nassau grouper	T	81 FR 42268 – 06/29/2016	2018	NE
Giant manta ray	T	83 FR 2916 – 01/22/2018	2019	NLAA
Oceanic whitetip shark	T	83 FR 4153 – 01/30/2018	2018	NLAA
Invertebrates				
Elkhorn coral	T	71 FR 26852 – 05/09/2006	2015	NE
Staghorn coral	T	71 FR 26852 -05/09/2006	2015	NE
Boulder star coral	T	79 FR 53852 – 09/10/2014	N/A	NE
Mountainous star coral	T	79 FR 53852 – 09/10/2014	N/A	NE
Lobed star coral	T	79 FR 53852 – 09/10/2014	N/A	NE
Rough cactus coral	T	79 FR 53852 – 09/10/2014	N/A	NE
Pillar coral	E	79 FR 53852 – 09/10/2014	N/A	NE
Queen conch	T	89 FR 11208 – 02/14/2024	N/A	NE
Marine Mammals				
Blue whale	E	35 FR 18319 – 12/02/1970	1998	NE
Fin whale	E	35 FR 12222 – 12/02/1970	2010	NE
Sei whale	E	35 FR 12222 – 12/02/1970	2011	NE
Sperm whale	E	35 FR 12222 – 12/02/1970	2010	NE
Rice's whale	E	84 FR 15446 – 04/15/2019	2020	NE

Table 3 abbreviations: E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect; NE = no effect

Table 4 – Critical Habitat(s) in the Action Area and Effect Determination(s)

Species	Critical Habitat in the Action Area	Critical Habitat Rule/Date	Effect Determination (Critical Habitat)
Sea Turtles			
Green (North Atlantic DPS)	0-20 m isobath	88 FR 46572 – 07/19/2023	NE
Fish			
Nassau grouper	Southern Gulf	89 FR 126 – 02/01/2024	NE
Marine Mammals			
Rice's whale	100-400 m isobath	88 FR 47453 – 07/24/2023	NE

Table 4 abbreviations: NLAA = may affect, not likely to adversely affect; NE = no effect